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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

YAO, SAM CHAUN CUA

ART UNIT

PAPER NUMBER

1733

4

DATE MAILED: 03/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/901,224

Applicant(s)

RUMACK, DANIEL T.

Examiner

Sam Chuan C. Yao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 8-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-7 and 22, drawn to a polyurethane hot melt adhesive, classified in class 524, subclass 198.
 - II. Claims 8-14, drawn to a method of improving the green strength of a polyurethane, classified in class 156, subclass 331.7.
 - III. Claims 15-21, drawn to a method for bonding materials together, classified in class 156, subclass 331.4.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process, such as simultaneously blending the recited composition.
3. Inventions I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as

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claimed can be used in a materially different process of using that product such as spraying glycol or amine mist to the recited adhesive to activate the adhesive.

4. Inventions II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions, because they have different modes of operation and/or functions. Group II is directed to a method of improving green strength, while Group III is drawn to a method of bonding materials.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Mr. Charles Almer on 03-12-03 a provisional election was made **without** traverse to prosecute the invention of Group I, claims 1-7 and 22. Affirmation of this election must be made by applicant in replying to this Office action. Claims 8-21 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-7 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 1 is indefinite because it is unclear what basis (i.e. relative or total; weight, mole, volume, etc.) is applied in determining the relative percentage of the recited composition. For the purpose of examining this claim, it is assumed to be based on a total weight of an adhesive composition. Moreover, it is also unclear what is intended by the phrases "*substantially non-crystalline*", "*substantially crystalline*" and "*functional acrylic*". For the purpose of examining these phrases, it is assumed that, these phrases reads on significantly greater than 50% amorphous, significantly greater than 50% crystalline, and a reactive acrylic, respectively. Note: the phrase "*not more than about 10%*" is taken to read on about 0%.

Claim 3 is confusing, because it is also unclear what basis is being used in the recited percentage composition. Equally important, is the recited percent composition based on the total amount in an adhesive composition or is it also based on the amount in the "*at least one substantially non-crystalline polyol*"?

Claim 4 is indefinite because it is unclear whether this claim requires a crystalline polyester in addition to the "*substantially crystalline polyol*" in claim 1 or merely further define the "*substantially crystalline polyol*" to be a crystalline polyester polyol. For the purpose of examining, it is assumed that, this claim 4 further defines the substantially crystalline poly in claim 1. Note further: the limitations of "*up to about 40%*" are taken to read on about 0%.

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Claim 5 is indefinite because it is unclear what is intended by "*non-functional acrylic*". For the purpose of examining this phrase, it is assumed to be a non-reactive acrylic.

Claim 6 is also indefinite because it is again unclear what basis is used in the recited percentage. Is the recited percent based on the total amount of an adhesive composition or relative to the amount of a functional acrylic polymer?

Moreover, this claim is confusing, since this claim reads on 0% by weight of non-functional acrylic. For the purpose of examining this claim, since this claim is dependent on claim 5, it is assumed that this claim requires an amount greater than 0 % by weight of non-functional acrylic.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-3, 5-7 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 1,153,997 A1 in view of Admitted Prior Art (APA) and Wolinki (US 3,994,764).

With respect to claims 1-2, 5, 7 and 22, EP '997 discloses a moisture curing polyurethane (PU) hot-melt adhesive comprising: a) amorphous polyol such as an amorphous polyester and/or an amorphous polyether; b) .1-10% by weight of

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a poly^f of a styrene/ally alcohol addition copolymer, the copolymer having a crystalline property at ambient temperature; c) an excess of polyisocyanate; and a thermoplastic acrylic resin (taken to be non-reactive). See abstract; page 3 lines 8-44 and claims 1-3. In example 1, for instance, it further teaches using 151.8 g of PPG, 12 g styrene/ally alcohol, and 246 g DEG-PA polyester (an aromatic polyester anhydride). Hence the weight percent of amorphous PPG is about 27.8% (i.e. this falls within the range recited in claim 3).

EP '997 does not expressly teach adding from about 1-30% of a reactive acrylic polymer. However, it would have been obvious in the art to add a reactive hydroxyl-containing acrylic to a PU hot-melt adhesive composition of EP '997, because the APA discloses that it is a common practice in the art to add a reactive hydroxyl-containing acrylic and non-reactive acrylic to a reactive PU hot-melt adhesive to improve the adhesive performance (specification; page 2 full paragraph 1). Moreover, absent any showing of unexpected benefit, it would have been obvious in the art to add around recited amount of reactive hydroxyl-containing acrylic as such is taken to be well known in the art of making a reactive hot-melt PU adhesive as exemplified in the teachings of Wolinski (abstract; col. 56 to col. 7 line 11; col. 8 lines 11-20). Moreover, one in the art would have determined, by routine experimentation, a workable/optimal amount of reactive acrylic to be added to an adhesive composition taught by EP '997. With respect to claims 3 and 6, in example 1, for instance, EP '997 also teaches using about 45 weight percent of DEG-PA polyester. About 40% recited in this

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claim is taken to read on about 45 percent by weight. Moreover, since one in the art would have determined a suitable amount of amorphous polyester and/or non-reactive acrylic to optimize the adhesive composition of EP '997, these claims would have been obvious in the art.

11. Claims 1-7 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oien (US 5,753,747) in view of Admitted Prior Art (APA) and Wolinki (US 3,994,764).

With respect to claims 1-5, 7 and 22, Oien discloses a hot melt PU reactive adhesive filler for articles, the filler comprises a) a 1st reaction product of a polyisocyanate and a semi-crystalline polyester polyol, the weight proportion of the 1st reaction product is around 6-37%; and b) a 2nd reaction product of polyisocyanate and an amorphous polyether glycol, the weight proportion of the 2nd reaction product is around 27-80 % (col. 1 lines 10-16; col. 5 lines 6-25). The phrase "*substantially crystalline*" is taken to read to semi-crystalline. In any event, it would have been obvious in the art to use a crystalline polyester polyols in making a hot-melt PU adhesive of Oien, because the APA discloses that it is well known in the art of making a hot-melt PU reactive adhesive to incorporate crystalline polyester polyols in order to enhance the green strength of the resultant adhesive (specification; page 2 full paragraph 1). It is further taken that, the recited composition of the "*substantially non-crystalline polyol*" and "*crystalline polyol*" overlaps the composition taught by Oien (see the above weight ranges). In any event, absent any showing of unexpected result, one in

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the art would have determined, by routine experimentation, an optimal compositional range in making an adhesive of Oien. Furthermore, the recited percent compositional ranges for "*substantially non-crystalline polyol*" and "*crystalline polyol*" are taken to be old in the art. For these reasons, they would have been obvious in the art.

As for the recited amount of functional acrylic polymer in claim 1, it would have been obvious in the art to add a reactive hydroxyl-containing acrylic and non-reactive acrylic to a PU hot-melt adhesive composition of Oien, because the APA discloses that it is a common practice in the art to add a reactive hydroxyl-containing acrylic and non-reactive acrylic to a PU hot-melt adhesive to improve the adhesive performance (specification; page 2 full paragraph 1). Moreover, absent any showing of unexpected benefit, it would have been obvious in the art to add around recited amount of reactive hydroxyl-containing acrylic as such is taken to be well known in the art of making a reactive hot-melt PU adhesive as exemplified in the teachings of Wolinski (abstract; col. 56 to col. 7 line 11; col. 8 lines 11-20).

With respect to claim 6, absent any showing of expected result, one in the art would have determined a workable weight range of non-reactive acrylic to be added to the PU adhesive taught by Oien. Moreover, the recited amount is taken to be conventional in the art.

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Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Chuan C. Yao whose telephone number is (703) 308-4788. The examiner can normally be reached on Monday-Friday with second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7115 for regular communications and (703) 305-7718 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.



Sam Chuan C. Yao
Primary Examiner
Art Unit 1733

scy
March 17, 2003